

KIENER, L. C.

1843. *Spécies général et iconographie des coquilles vivantes.*
Genre *Ovule*; pp. 1 - 16; plts. 1 - 6

REEVE, LOVELL AUGUSTUS

1865. *Conchologia Iconica*; monograph of the genus *Ovulum*;
plts. 1 - 14

SCHILDER, FRANZ ALFRED

1932. The living species of *Amphiperatinae*. *Proc. Malac.*
Soc. London, 20: 46 - 64; plts. 3 - 5

SOWERBY, GEORGE BRETtingham

1848. *Thesaurus Conchyliorum*, or monographs of genera of
shells. London. *Ovulum*. 2: 467 - 484; plts. 99 - 101

WEINKAUFF, H. C.

1881. *Die Gattungen Cypraea und Ovula.* *Conchylien-Cabinet* (2nd. ed.), MARTINI & CHEMNITZ. Nürnberg, pp. 1 to
230; plts. 1 - 53A

The Cowries Established by COEN in 1949

(Mollusca: Gastropoda)

BY

FRANZ ALFRED SCHILDER

University of Halle, German Democratic Republic

GIORGIO SILVIO COEN (1949) has described many "new varieties" and two "new species" of cowries; his paper has been quoted in the *Zoological Record* (86:74-76), but the periodical in which it has been published is hardly available in public libraries so that even ALLAN (1956: 114) must admit that COEN's publication is unavailable to her. After several vain attempts to get a copy of the paper, I asked Mr. S. P. DANCE, British Museum, for a photocopy for which I am much obliged to him. It proved that both in the *Zoological Record* and in the list given by ALLAN (1956: 114-115) some new names have been omitted or incorrectly spelled.

With only one exception (*Erosaria erosa pulchella* COEN, 1949) the many new names established by COEN are of no scientific value, as they refer to individual varieties or even monstrosities, the exact habitat of which is often unknown or even incorrect; several varieties evidently belong to other species than COEN thought. Nevertheless these names have been established in a valid trinomial way, so that they must be considered in all future synonymic lists. Many names, however, would become invalid by secondary homonymy if one would lump all cowries to one monster genus *Cypraea* as recently several malacologists are doing, whereas COEN followed the "splitters" and adopted many natural genera.

Therefore I think it useful to publish an excerpt of COEN's descriptions for the great number of malacologists who cannot obtain the original publication written in

Italian. Moreover, I have added my own interpretations of the varieties established by COEN, which have been always put in [square brackets] so that they can be well distinguished from COEN's indications. My remarks also include the results of personal examination of type specimens (preserved in COEN's collection) during my visits to Venice in 1931 and 1933; most type specimens, however, seem to have been acquired by him in later years. I have been told by COEN's widow that his collection has been located at Tel Aviv (Israel).

COEN's descriptions are very short, and in the following review they have been still more restricted to the essential characters distinguishing the "new varieties" from usual specimens. COEN indicated the length and the maximum breadth of the holotype in mm, but in this review I have expressed the breadth in per cent of the length, separated from the length (in mm) by the sign /. I should like to call the attention of readers of the original publication to the curious fact, that COEN evidently used the terms "right" and "left" in an unusual way so that the outer lip which is the right margin of the creeping mollusk is called "left" if the shell is regarded from the dorsal aspect, e.g. p. 14:

Erosaria erosa pulchella, p. 15: *E. caputdraconis punctatissima* (the dorsal line is always placed above the right margin!), p. 17: *Erronea erronea fusca* ("on the lip and the right side"); but it is correctly called "right" by basal view (e.g. *Erronea caurica caledonica*).

COEN indicated type localities of all new varieties; many indications, however, are practically worthless, as they refer to world wide regions only; he often added "s.l." (senza località=without [exact]locality). Other localities marked by COEN with the sign ! (which has also been adopted in the present review) are said to be "exact and sure".

COEN's arrangement of genera and species has been adopted in this paper.

The following cowries have been named and described by COEN (1949):

(COEN, page 13)

Cypraea (Vulgusella) tigris fuscoapicata: 81/75 and 68/71, extremities dorsally dark brown, dorsal spots confluent longitudinally [not fully grown abnormality]; Australia s.l. [habitat uncertain].

Cypraea (Lyncina) lynx nigroguttata: 33/68, subcylindrical, margins thickened, lateral spots tuberculate [extremely callous abnormality]; Indian Ocean [no habitat].

Cypraea (Lyncina) lynx javana: 32/66, margins heavily callous [widely spread common variety]; South coast of Java!

Cypraea (Lyncina) vitellus gibbosa [name preoccupied]: 43/72, gibbous and callous [frequent variety]; Guam!

Cypraea (Lyncina) carneola pretiosa [name preoccupied]: 22.5/64, small, glossy, otherwise typical [the smallest known *C. carneola* LINNAEUS, 1758, is 17.2 mm long]; Benadir! [in formerly Italian Somaliland].

Cypraea (Lyncina) carneola aurea [name preoccupied]: 39/59, pale yellow without dorsal zones, teeth whitish, like in *loebbeckeana* WEINKAUFF, 1881 [of which *aurea* becomes a synonym]; Australia [doubtful].

Mauritia (Arabica) arabica dilatata: 55/76, anterior extremity dilated, inner lip swollen, thus recalling *maculifera* SCHILDER, 1932, but without basal blotch [callous variety]; China Sea! [COEN presented me a paratype (coll. SCHILDER 4984) from "China" which word was written on the shell itself: 53/74 with 30:26 teeth, margins much expanded, base flattened, dorsum lineate longitudinally without distinct lacunae.]

(COEN 1949 p. 14)

Mauritia (Arabica) arabica gibba: 52/67, humped as [*Trona*] *stercoraria* LINNAEUS, base swollen; China Sea! [The holotype very probably came from the same population as *dilatata* COEN; it is an inflated callous *arabica* (LINNAEUS 1758).]

Mauritia (Arabica) eglantina aurea: 46/57, yellow like gold, dorsal markings hardly visible, the spire blotch accepted [more probably suffused by yellow enamel than a pellucid variety; besides such shells can be obtained artificially by exposing usual shells to dry heat of 100° Centigrade for one day]; Indian Ocean s.l. [no habitat].

Mauritia (Arabica) eglantina rufa: 66/59, throughout reddish brown, dorsally adorned with usual markings, base white [evidently an abnormality suffused with chestnut]; Indian Ocean s.l. [no habitat].

Mauritia (Arabica) histrio duploreticulata: 85/65, the two uppermost layers of the dorsal reticulate enamel do not cover each other exactly so that the whitish lacunae become crossed by brown lines [frequent abnormality with the uppermost dorsal layer displaced]; Indian Ocean s.l. [no habitat].

Luria lurida onycina: 23/57 from Palermo!, and 27/63 from Tunis! (both ex coll. MONTEROSATO): small, olivaceous, inzonate though glossy [frequent variety].

Luria lurida incrassata: 34/71, gibbous, callous, inzonate [variety frequent in surf localities]; Tyrrhenian Sea [inaccurate indication].

Luria lurida badia: 36/58 and 21/62, brown, inzonate [frequent variety]; Sicily! [The smaller paratype has been presented to the writer (coll. SCHILDER 4988), it is 20.6/62 with 12:14 teeth, greyish brown, inzonate though being collected alive; four other shells in coll. COEN vary from 21 to 23.5 mm; the smallest known Mediterranean *lurida* (LINNAEUS, 1758) is 14.3 mm long (coll. SCHILDER 1214).]

Luria lurida liburnica COEN, 1937: not described, only with reference to COEN 1937, p. 150 [though it has been established first by COEN 1933 p. 162 from Dalmatia]: 45/62, thin, zonate [the holotype in coll. COEN is a large pale *lurida*].

[The monstrosity *Luria lurida obstructa* COEN 1933 and 1937 has not been mentioned by its author in 1949.]

Luria (Basilitrona) isabella cylindroides: 25/46, cylindrical, dorsum with black striæ, extremities orange [it seems to be the narrowest specimen known, though Hawaiian *controversa* (GRAY, 1824) sometimes shows a minimum index 47]; Fiji! (*ex coll.* DAUTZENBERG) [possibly erroneous, as Fijian *isabella* (LINNAEUS, 1758) usually are much broader].

Monetaria moneta annulifera [name preoccupied]: 25/80, broad, lateral and six basal tubercles well developed, orange dorsal ring distinct; Indian Ocean s.l. [no habitat. The holotype in coll. COEN is 24.4/80, broad with lateral tubercles oblique as in ecotype "M" of SCHILDER 1937, p. 1122, dorsal ring vividly yellow, aperture straight, but bent behind, base with five right and two left prominent tubercles; a paratype from the same unknown locality (coll. COEN) is 20.5/72 with similar dorsal ring and lateral and basal tubercles, but with wider aperture; both shells seem to belong still to ecotype "R".]

Erosaria erosa marginata: 38/66, margins enormously thickened, outer lip crossed by the labial teeth, dorsal line replaced by a slight sulcus [extreme variety occurring in surf localities]; Red Sea! [wrong, as *erosa* (LINNAEUS, 1758) does not live in the Red Sea].

Erosaria erosa pulchella: 18/58 with 13:12 teeth only [which is about the average closeness of teeth in *erosa* (LINNAEUS, 1758)], pale, left [=right] lateral blotch absent, base white. Australia! [This name could be adopted for the local race of New South Wales characterized by the absence of the labial lateral blotch (see SCHILDER 1963).]

Erosaria diaphana n.sp.: allied to *erosa* [LINNAEUS], 15.5/65, cylindrical, light, right margin pitted, hardly thickened, 11 produced labial and 12 short columellar teeth, pellucid, white, without any markings [evidently an albinism of *erosa* if not a bleached beach specimen]; Australia s.l.!

(COEN, p. 15)

Erosaria lamarki inocellata [name preoccupied]: dorsal spots pure white; Benadir! [formerly Italian Somaliland]. [Unfortunately COEN did not indicate the dimensions of the holotype, as the markings are comparable to the dwarf race from Port Reitz, Kenya (SCHILDER, SCHILDER & BENTON 1962).]

Erosaria ocellata fasciomaculata: 28/64, dorsum with a transversal zone and white points, bordered with two large square brown blotches above the margins. Red Sea! [According to the description and the habitat (*ocellata* (LINNAEUS, 1758) does not live in the Red Sea) the holotype must be a typical *Erosaria nebrites* (MELVILLE, 1888); the chestnut basal striæ of *nebrites* (which was evidently unknown to COEN) misled COEN to think the shell to belong to *ocellata*.]

Erosaria acicularis nitidiuscula: 30/73, light, dorsum unspotted but slightly freckled with very pale yellow, dorsal line impressed [the markings of *acicularis* (GMELIN, 1791) are rather variable]; Antilles. [The holotype in coll. COEN is an *acicularis* of 30.1 mm, evidently suffused with whitish enamel.]

Erosaria helvola immaculata: 21/76, dorsum white, brown spots obsolete, lateral bands conspicuous [frequent variety in which the predominant white specks coalesce]; [formerly Italian] Somaliland!

Erosaria spurca peculiaris: 33/55, elongate, dorsum whitish with minute brown spots [frequent variety]; Libya! and Sicily!

Erosaria spurca inflata: 32/66, globose, spire acuminate, inner lip acutely protruding beyond the outer lip posteriorly; [a monstrosity] as COEN himself has presumed; Taormina! [in Sicily].

Erosaria (Ravitrona) caputserpentis albosignata: 30/77, with the dorsal spots partially confluent to large white blotches united with the dorsal line [abnormal aberration]; India [practically no habitat].

Erosaria (Ravitrona) caputdraconis punctatissima: 26/69, dorsal area reddish brown with fine white points, contrasting with the dark margins, but separated by the pale dorsal line above the left [=right] margin [insignificant aberration]; Easter Island!

Staphylaea staphylaea fortis: 21/67, solid, dorsal tubercles coarse, color rather typical [frequent variety]; Polynesia s.l. [no habitat].

Staphylaea staphylaea nitida: 15/60, dorsum smooth, but central line impressed, milky white, extremities orange, teeth yellowish [probably not fully grown and bleached]; Australia s.l. [possibly correct].

Staphylaea staphylaea consobrina lactea: 19/63, white, extremities and teeth orange [such shells mostly are bleached]; Batavia! [=Djakarta].

Staphylaea staphylaea consobrina grisea: 18/61, granulate, grey, extremities dark brown, base white [probably subjunior]; Polynesia [no habitat].

[The quadrinominal classification of the two last named *Staphylaea* contrary to all other strictly trinominal designations is surprising: I suppose that COEN intended to separate specifically *consobrina* (GARRETT, 1879), from *staphylaea* (LINNAEUS, 1758) and forgot to erase the latter name used in the two paragraphs before.]

Staphylaea limacina ebur: 25/56, smooth, glossy, ivory white, unspotted; Hawaii! [Such pale shells have been found in Hawaii in subfossil state, but they belong to *Staphylaea semiplota polita* (ROBERTS, 1868), whereas *St. limacina* (LAMARCK, 1810) does not live in Hawaii; therefore *ebur* should be removed to *semiplota* (MIGHELS, 1845).]

Staphylaea limacina nitens: 24/58, smooth, ivory white with white dots, extremities and teeth orange; Oceania s.l. [no habitat; such pale shells occur both in *limacina* and *semiplota*, but I suspect *nitens* to belong to the latter and to come also from Hawaii, as *limacina* is restricted to the south-western and western borders of "Oceania" only].

(COEN, p. 16)

Nuclearia nucleus cerea [name preoccupied]: 24/67, wax-colored without red lines anywhere [pellucid or bleached]; Madagascar! [The name *cerea* has been used by PAETEL 1887 for an undescribed variety (nomen nudum), of *nucleus* (LINNAEUS, 1758) but adopted by SULLIOTTI 1924 for the albinistic *nucleus*.]

Pustularia cicercula purissima: 20/62, glossy, tuberculate, pure white; Mauritius! (ex coll. MONTEROSATO ex coll. GERET). [Such subpellucid *cicercula liénardi* (JOUSSAUME, 1874) occur in Mauritius.]

Luponia fuscudentata alba: 32/66, slightly worn, pure white [such bleached shells will be found sometimes

among beach specimens]; Cape of Good Hope ! [probably from the South coast east of the Cape itself].

Notocypraea angustata lentiginosa: 22.1/70, solid, margined, flesh colored, minutely freckled with brown [as *angustata* (GMELIN, 1791) is always unspotted, this description exactly fits *Notocypraea declivis* (SOWERBY, 1870) of which *lentiginosa* becomes a synonym]; Tasmania!

Guttacypraea pulicaria candida: 15.5/39 [such extreme slenderness is very improbable so that I suspect an error in measuring], hyaline, white, unspotted [albinistic or bleached]; West Australia.

Zonaria pyrum elongata: 31/58, more elongate than typical *pyrum* [(GMELIN, 1791), but within the usual range of variation as I know shells down to the index of breadth 53]; Naples !

Zonaria pyrum cruenta: [no dimensions indicated] base blood red [well known extreme color variety]; Naples ! [The holotype in coll. COEN is 35.8 mm long, very dark, with distinct dorsal zones.]

Zonaria pyrum confusa: [no dimensions indicated] dorsum confusely spotted, zones invisible, base fulvous [a frequent variety]; Tyrrhenian Sea and Dalmatia!

Zonaria pyrum hepatica: 39/59, base liver-brown [a frequent variety]; Naples!

Zonaria pyrum piperitoides: 28/64, pale, zones interrupted as in the variety *undata* PALLARY so that the shell recalls *Notocypraea piperita* var. 1 of HIDALGO [1907; the latter is *Notocypraea bicolor* (GASKOIN, 1849); COEN's shell represents a frequent abnormality, probably not fully grown] Naples!

Zonaria pyrum compressa: 33/61, outer lip compressed in its central part [pathological monstrosity]; Tyrrhenian Sea [inaccurate indication].

Zonaria pyrum nivosa: 37/59, small [the mean of *Z. pyrum* (GMELIN, 1791) is 35 mm], dorsum with two white bands and two irregular white blotches on the rear, base yellowish [abnormality]; Linosa! [holotype] and Lampedusa ! [paratype in coll. COEN: 31.9 mm, saturate, with three dark zones and round light lacunæ on the dorsum: a frequent variety].

Zonaria pyrum aurantia: 35/63, dorsum with three white bands, base vividly orange [common variety]; Mediterranean Sea [no habitat].

Zonaria pyrum minima (MONTEROSATO MS.); 24/54, the smallest known specimen, otherwise typical; Viareggio! (ex coll. MONTEROSATO). [The holotype in coll. COEN is 23.8 mm long, rather saturate, with the dark central zone indistinctly divided into two parts. MONTEROSATO 1897 has published a var. *minor* of 26 mm; I have seen a *Z. pyrum* of 22.5 mm only from Tunis in coll. DAUTZENBERG].

(COEN, p. 17)

Zonaria pyrum physoides: reference to COEN 1937 only [though established already in COEN 1933 (see above sub *Luria lurida liburnica*); in this paper it is described as 42/62, recalling *Schilderia achatidea* (SOWERBY 1837), var. 2 of HIDALGO 1907 in color, but differing in dentition; Dalmatia. The holotype in coll. COEN is a rather young, pale *Z. pyrum* (GMELIN, 1791) with pale fulvous base; specimens from Dalmatia usually are larger than from elsewhere].

Erronea erronea fusca: 24/60, not fully grown, outer lip shortened in front, dorsum leaden-colored, trizonate, base whitish [a young shell, deformed pathologically]; Cape St. Jacques in Cochinchina!

Erronea caurica immaculata: 55/53, oblong, rather pale, dorsal blotch absent [common variety]; Benadir! [formerly Italian Somaliland. The holotype in coll. COEN is a subpellucid variety of *caurica* (LINNAEUS, 1758).]

Erronea caurica multidentata: 46/55, with 26 labial and 24 columellar teeth, otherwise similar to the preceding [the closeness of teeth is about at the border of the known range of variation]; Red Sea !

Erronea caurica nitens: 36/53, oblong, vitreous, dorsal zones and specks rosy, lateral spots reddish, base pale flesh color [typical pellucid variety]; Mauritius! [The holotype in coll. COEN belongs to the pellucid variety rather frequently collected in Mauritius.]

Erronea caurica caledonica: 25/60, right margin thickened and spotted, the brown lateral blotches are absent [a curious remark by COEN as *erosa*-like blotches never occur in *caurica*], dorsum trizonate and freckled with fulvous, base white [a typical *caurica* (LINNAEUS, 1758)]; New Caledonia !

Erronea pseudarabica n.sp.: allied to *caurica*, 23/61, with 15 teeth on each lip [closeness approaching the mean of *caurica*], shape as in *caurica*, but color as in *Pseudozonaria arabica* (LAMARCK, 1810): dorsum bluish, with chestnut specks coalescent in three transversal zones, right lateral spots confluent to a longitudinal band [as in var. *nigrocincta* SCHILDER, 1924], base flesh color; [formerly Italian] Somaliland! [There is no reason to separate this slight aberration of *caurica* (LINNAEUS, 1758) as a new species.]

Blasicrura cylindrica emaculata: 31/48, typical, but without the usual dorsal blotch [which may disappear gradually as in other *Erronea*]; Australia [possibly correct].

Palmadusta asellus fusca: 18/56, dorsum fulvous [instead of white] between the dark zones, but margins white [an aberration occurring sporadically]; Red Sea ! [locality doubtful, as the only indications by ISSEL 1869 and SMITH 1903 seem not to be reliable].

Palmadusta diluculum magna: 28/63, dorsum covered with fine transversal lines except in the central zone where they are replaced by a row of arrow-shaped white spots [the long description refers to a shell in which the two dark central zones are reduced so that the zigzag lines become predominant]; Zanzibar!

Palmadusta diluculum epunctata: 21/62, dorsum with three rows of yellowish red blotches, the intermediate bands are plain white, lateral and terminal black spots absent [the frequent pellucid variety of *diluculum* (REEVE, 1845); the unspotted margins point to the Lemurian race *virginalis* SCHILDER & SCHILDER, 1938]; Philippines [erroneous, as *diluculum* is restricted to the western Indian Ocean; the incorrect habitat Philippines indicated by REEVE (1845) has been copied by many collectors and dealers].

Palmadusta (Purpuradusta) fimbriata nitida: 17.5/63, dorsum white, plain or with minute brown specks [COEN evidently had in mind *gracilis* (GASKOIN, 1849) which has been incorrectly called *fimbriata* (GMELIN, 1791) by writers prior to 1938; a paratype from the Persian Gulf presented to me by COEN (coll. SCHILDER 4987) is a *P. gracilis*: 17/62, with 17:16 teeth, ovate, rather callous, suffused with a thin layer of white enamel, so that the pink tips and brownish lateral dots become very pale; other specimens in coll. COEN (including the holotype) were still more suffused with white]; Persian Gulf!

Siphocypraea mus suta: 35/71, dorsal area with grey zigzag lines [characterizing young specimens], accompanied at the left [=right] margin by one longitudinal series of blackish spots from anterior extremity to the spire blotch, recalling roughly a stitched suture [Latin *suere* = stitch; I possess a similar individual aberration]; Antilles! (ex coll. CUMING).

(COEN, p. 18)

Primovula carnea gibbosa: [no dimensions indicated], dorsum asymmetrically gibbous on the left side [pathological monstrosity]; Trapani! and Dalmatia! [see below].

Primovula carnea dorsolirata: 12.5/56, pinkish, dorsum with 10 to 12 white longitudinal ribs [another monstrosity], Capri Island!

Primovula carnea major: 19.5/59, thin, white, approaching *Primovula adriatica* (SOWERBY, 1828). Ancona! and Lesina! [Probably a synonym of *adriatica*, as *carnea* (POIRET, 1789) does not seem to have been reported from the Adriatic Sea before COEN 1949; COEN did not indicate the differences of *major* from *adriatica*.]

Simnia (Neosimnia) spelta brevis: 13.1/57, shorter and more convex, pale flesh color [insignificant aberration]; Palermo! (ex coll. MONTEROSATO).

Simnia (Neosimnia) spelta illyrica [name preoccupied]: 11.5/52, elongate, with the rear produced, wax-colored, Dalmatia! [It is a synonym of *Simnia (Neosimnia) illyrica* SCHILDER, 1927 from the Adriatic Sea: a curious case of independent identical naming of the same variety by two authors.]

Jenneria pustulata bimaculata: 18/72, with a dark brown blotch at each end of the dorsal sulcus [these blotches are well visible in most fresh specimens, but they become often rather pale and indistinct]; Panama!

Jenneria pustulata pumilio: 11/64, extremities whitish dorsally, otherwise typical [the museum of Hamburg, destroyed during World War II, possessed several specimens of 11 mm, the smallest measuring 10.3 mm; they came from Diego]; Panama!

Trivia dalmatica COEN 1937: reference only [The shell described by COEN 1937 p. 150 evidently is a *Trivia multilirata* (SOWERBY, 1870), measuring 11.4/79; in 1933 COEN possessed several specimens from the Adriatic Sea, varying from 7.8 to 14.7 mm; a paratype presented to me (coll. SCHILDER 3361) is 9.8/78 with 25:21 teeth and 68 ribs around the shell].

LITERATURE CITED

- ALLAN, JOYCE
1956. Cowry shells of world seas. Georgian House, Melbourne. i - x; pp. 1 - 170; pls. 1 - 15.
- COEN, GIORGIO SILVIO
1933. Sylloge molluscorum adriaticorum. Mem. R. Comit. Talassogr. Italiano. 192: 46 - 47, 162; plt. 3
1937. Nuovo saggio sylloge molluscorum adriaticorum. Mem. R. Comit. Talassogr. Italiano, 240: 46 to 47, 150 to 151, 162
1949. Nota su alcune forme nuove di "Cypraeaacea." Hist. Nat. Roma 3 (1): 13 to 18
- SCHILDER, FRANZ ALFRED, & MARIA SCHILDER
1937. Revision of the genus *Monetaria* (Cypraeidae). Proc. Zool. Soc. London, 1936 (4): 1113 - 1135; pls. 1 - 2
1963. Studies in variation of cowries: The marginal blotches of *Erosaria erosa* (LINNAEUS). Hawaiian Shell News, n. s., 43: 4 - 5
- SCHILDER, F. A., MARIA SCHILDER, & RONALD STEWART BENTON
1962. Studies on *Erosaria lamarckii* GRAY (Gastropoda). The Veliger 5 (1): 30 - 32 (1 July 1962)
- ZOOLOGICAL RECORD, LONDON
1952. volume 86 (for 1949): 74 - 76